

What is claimed is:

1. A method of disseminating information to a plurality of nodes, the nodes connected in a network environment, said method comprising:
receiving a disseminated message, the message having broadcast-type information; and
sending the received message to a plurality of other nodes identified in a partial view, wherein the partial view resides locally and identifies some of the other network nodes.
2. A method as defined in claim 1 wherein the act of sending the message to a plurality of nodes further comprises delivery of the message to all nodes identified in the partial view.
3. A method as defined in claim 1 wherein each node in the network maintains a partial view.
4. A method as defined in claim 1 wherein the partial view comprises address information for a plurality of nodes on the network, but less than all nodes on the network.
5. A method as defined in claim 1 further comprising:
determining whether the received message has been previously received; and
if the message has been previously received, then the message is not sent to any other nodes.
6. A method as defined in claim 5 further comprising the act of storing identification information related to the received message to enable the determination of whether the message has been previously received.
7. A method as defined in claim 1 further comprising:

determining whether the message is a broadcast-type message; and
if the message is not a broadcast-type message, the message is not sent to other nodes.

8. A method of generating a partial view of a network, the network comprising a plurality of nodes, the method comprising:
receiving a request to subscribe to the network from a new node;
determining whether to keep the information related to the new node; and
if the new node information is to be kept, storing identifying information related to the new node; and
forwarding the subscription request message to at least one other node in the network.

9. A method as defined in claim 8 wherein the determining act further comprises:
predetermining a threshold value;
upon receipt of the request to subscribe, generating a random number;
comparing the random number to the predetermined threshold value; and
based on the results of the comparison determining whether to keep the information related to the new node.

10. A method as defined in claim 9 wherein the threshold value relates to whether the subscribing node randomly chose the receiving node.

11. A method as defined in claim 8 wherein the subscription request is received by a node having a partial view of the network and wherein the subscription request is forwarded to all nodes identified in the partial view of the receiving node.

12. A method as defined in claim 8 wherein the subscription request is received by a node having a partial view of the network and wherein the subscription

request is forwarded to only one node identified in the partial view of the receiving node.

13. A method as defined in claim 11 further comprising:
receiving a forwarded subscription request;
determining whether to keep the new subscription request based on
predetermined criterion; and
keeping the new node information if the predetermined criterion is satisfied.

14. A method as defined in claim 8 further comprising:
determining whether the new subscription request is new or forwarded; and
if forwarded, determine whether to keep the information based on a
predetermined criteria wherein the predetermined criteria relates to a random selection.

15. A method as defined in claim 14 wherein the predetermined criterion
relates to a probability inversely proportional to the size of the partial view for the
existing node.

16. A method as defined in claim 15 wherein the predetermined criterion
further relates to the distance between the new node and the existing node.

17. A method as defined in claim 15 wherein the act of determining whether
to keep the new subscription information first determines whether the new subscription
information resides in the partial view of the receiving node and if so, forwards the
subscription request to another node identified in the partial view of receiving node.

18. A method of recovering an isolated node in a network environment, the
method comprising:
receiving a broadcast message;
starting a timer;

if timer expires before receiving another message, sending another subscription request to a node identified in the partial view of the isolated node; and

if a new message is received before the timer expires, restarting the timer.

19. A method as defined in claim 18, further comprising:

broadcasting a heartbeat message to other nodes in the environment to prevent premature isolation.

20. A computer system for disseminating information in a distributed network comprising:

a receive module for receiving a broadcast message;

a storage module for storing information related to other nodes in the network in a partial view; and

a communication module for transmitting broadcast information to nodes indicated in the partial view.

21. A computer system as defined in claim 20 wherein the partial view comprises address information for some of the nodes in the network.

22. A computer system as defined in claim 20 wherein the communication module transmits broadcast information to all nodes identified in the partial view.

23. A computer system as defined in claim 20 wherein the computer system is part of a distributed network of computer systems, and wherein other computer systems in the network maintain a partial view of the entire network.

24. A network of nodes having the ability to communicate information between said nodes, said network comprising:

an application-based broadcast protocol using a gossip-based algorithm;

each node maintains a partial view of the entire network; and

each node gossips only to other nodes identified in the partial view.

25. A computer readable medium having stored thereon a data structure comprising:

a first identification field for storing address location information for a node in a network environment;

a second identification field for storing address location information for another node in a network environment;

wherein the first and second identification fields represent a partial view of the network environment; and

wherein the data structure is used for a gossip-based communication between the nodes in the network.

26. A data structure as defined in claim 25 having a plurality of additional identification fields, each field identifying address information for different nodes in the network.

27. A computer readable medium having stored thereon a data structure representing a subscription request for requesting membership into a network comprising:

header information portion having sender node and receiver node information;

request information portion for requesting membership into the network;

a forwarded information portion that indicates whether the subscription request is forwarded or new; and

new subscriber node identifying information portion for uniquely identifying the location of the new subscriber node.

28. A data structure as defined in claim 27 further comprising protocol information related to the gossip-based protocol used in the network.

29. A data structure as defined in claim 28 further comprising size information relating to the size of the partial view of the sending node.